

E-002/CN-91-19 ORDER GRANTING LIMITED CERTIFICATE OF NEED

BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

Don Storm  
Tom Burton  
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Chair  
Commissioner  
Commissioner  
Commissioner  
Commissioner

In the Matter of an Application  
for a Certificate of Need for  
Construction of an Independent  
Spent Fuel Storage Installation

ISSUE DATE: August 10, 1992

DOCKET NO. E-002/CN-91-19

ORDER GRANTING LIMITED  
CERTIFICATE OF NEED

**PROCEDURAL HISTORY**

**I. Initial Proceedings**

On April 29, 1991 Northern States Power Company (NSP or the Company) filed an application for a certificate of need to build a nuclear waste storage facility at its Prairie Island nuclear power plant. The facility would store spent fuel from the two Prairie Island reactors until the federal Department of Energy transported it to a permanent or temporary national nuclear waste storage facility. The waste would be stored in dry casks in an above-ground earth-sheltered facility.

Since the plant began operating, the Company has been storing used fuel in a spent fuel pool inside the auxiliary building at the plant. That pool is expected to be full in early 1995.

On May 29, 1991 the Commission found the Company's application was not substantially complete; the Commission required supplementary filings, which the Company made on June 12, 14, and 28, 1991. On July 18, 1991 the Commission accepted the supplemented filing as substantially complete and referred the application to the Office of Administrative Hearings for contested case proceedings. The case was assigned to Administrative Law Judge Allan W. Klein.

**II. The Parties and their Representatives**

When this case was referred to the Administrative Law Judge the parties were the Company; the Prairie Island Mdewakanton Sioux Indian Community (the Community), who live near the plant and the site of the proposed storage facility; the Department of Public Service (the DPS); the Minnesota Public Interest Research Group (MPIRG); the North American Water Office (NAWO); and Minnesotans for an Energy Efficient Economy (ME3).

While the case was before the Administrative Law Judge the last three parties joined with 15 other organizations to form the Prairie Island Coalition Against Nuclear Storage (the Coalition). The members of the Coalition are MPIRG, NAWO, ME3, the American Indian Movement, Citizens for a Better Environment, Clean Water Action, Direct Expressions, Greenpeace, the International Indian Treaty Council, the Minnesota Hispanic Bar Association, the Minnesota Minority Lawyers Association, Mississippi River Revival, the National Lawyers Guild, Northern Sun Alliance, Rattling Springs Environmental Coalition, the Northstar Chapter of the Sierra Club, and the Youth Greens. The Prairie Island Mdewakanton Sioux Indian Community (the Community) is also a Coalition member, but had individual representation in this proceeding.

Before evidentiary hearings began, the Minnesota Environmental Quality Board (EQB) and the Minnesota Department of Health (the Health Department) also intervened in the case.

All parties were represented by counsel, as follows:

The Company was represented by Michael J. Bradley and Michael J. Ahern, Moss & Barnett, 4800 Norwest Center, 90 South Seventh Street, Minneapolis 55402 and Michael Connelly, Northern States Power Company, 414 Nicollet Mall, Minneapolis, Minnesota 55401.

The Community was represented by Richard A. Duncan and Sandi B. Zellmer, Faegre & Benson, 2200 Norwest Center, 90 South Seventh Street, Minneapolis, Minnesota 55402 and Kurt V. BlueDog and William J. Hardacker, BlueDog Law Office, Suite 555, 5001 West 80th Street, Bloomington, Minnesota 55437. The Coalition was represented by Eila Savela, Minnesota Public Interest Research Group, 2512 Delaware Street Southeast, Minneapolis, Minnesota 55414.

The DPS was represented by Eric F. Swanson and Amy V. Kvalseth, Special Assistant Attorneys General, 1100 Bremer Tower, Seventh Place and Minnesota, St. Paul, Minnesota 55101.

The EQB was represented by Alan R. Mitchell, Special Assistant Attorney General, Suite 1400, NCL Tower, 445 Minnesota, St. Paul, Minnesota 55103.

The Health Department was represented by Paul G. Zerby, Special Assistant Attorney General, Suite 500, 525 Park Street, St. Paul, Minnesota 55103.

### **III. Proceedings Before the Administrative Law Judge**

The Administrative Law Judge issued a Prehearing Order establishing time frames for pre-filed testimony. With minor adjustments, those filings were made under the following schedule. The Company filed direct testimony on August 30, 1991,

and the other parties on September 30, 1991. All parties filed rebuttal testimony on October 30, 1991. The Administrative Law Judge held evidentiary hearings from November 18, 1991 through December 19, 1991. The parties filed initial briefs, reply briefs, and proposed findings and conclusions for his consideration.

The Administrative Law Judge held public hearings on the Company's application at three locations: Red Wing, the Prairie Island Indian Reservation, and St. Paul. Forty-five members of the public spoke at the Red Wing hearing, forty-five at the hearing on the reservation, and seventy-two at the hearing in St. Paul. Over 5,000 members of the public expressed opinions on the Company's proposal, through letters, petitions, resolutions, and telephone calls.

On April 10, 1992 the Administrative Law Judge issued his report. In brief, he found that the storage facility required legislative approval under the Minnesota Radioactive Waste Management Act, Minn. Stat. § 116C.72, because it was likely to become a permanent storage facility. He also found that if the Act did not apply, the certificate should be granted.

#### **IV. Proceedings Before the Commission**

The parties filed exceptions and replies to exceptions to the report of the Administrative Law Judge. The Commission heard oral argument from all parties on June 24, 1992. Having reviewed the entire record herein, and having heard the arguments of all parties, the Commission makes the following Findings, Conclusions, and Order.

### **FINDINGS AND CONCLUSIONS**

#### **V. Factual Background**

##### **A. The Prairie Island Plant**

The Prairie Island power plant began operating in 1973, when the first of its two nuclear reactors came on line. The second reactor came on line in 1974. Since then the plant has been a cornerstone of NSP's strategy for meeting the energy needs of its service area. The plant currently provides 20% of the Company's system energy needs.

By any traditional measure, the Prairie Island plant produces electricity economically and efficiently. The plant's energy production cost per kilowatt hour is 1.5 cents, matched only, among non-hydro plants, by the Company's other nuclear plant at Monticello. Energy production costs for NSP's other large power plants range from 1.6 cents per kilowatt hour to more than

3 cents per kilowatt hour. Because of these cost advantages, Prairie Island and Monticello are the first plants the Company dispatches in meeting demand.

The Prairie Island plant has a history of reliable power production. The reliability of baseload generating facilities is usually measured in terms of load factor, the ratio between the plant's average load and its peak load during a given period of time. The theory is that a baseload plant, which is relied upon to serve ongoing load, should produce at a relatively even level at all times. Nuclear News, a trade journal, recently ranked the load factor of Prairie Island's unit one, with a three-year average of 89.2%, seventh in the world. It ranked unit two, with a three-year average load factor of 93.0%, second in the world.

When the Prairie Island reactors came on line in 1973 and 1974, the Company believed the plant's used fuel would be shipped off-site for reprocessing. Therefore, the only spent fuel storage space in the original plant was a small holding pool designed to store small batches of used fuel pending shipment for reprocessing. Reprocessing was later abandoned as a workable waste management strategy by the federal government, which instead began seeking a site for a permanent federal nuclear waste repository.

In 1977, with reprocessing unavailable and no federal storage facility yet established, the Company expanded the plant's holding pool into a storage pool to hold used fuel until it could be shipped to the future federal nuclear waste repository. By 1979 the pool was running out of storage space. The Company then applied for and received a certificate of need to again expand the pool. (The certificate was granted by the Minnesota Energy Agency, an agency whose duties have since been divided between the Commission and the Department of Public Service.)

The plant is now running out of storage space again. The storage pool inside the plant will be full by early 1995, well before the end of the plant's useful life or the expiration of its operating license in 2014.

## **B. The Plant and the Indian Community**

The grounds of the Prairie Island plant are adjacent to the Prairie Island Mdewakanton Sioux Indian Community Reservation, a community of some 400 people, of whom approximately 176 live on the reservation. The Community opposes construction of the nuclear waste storage facility. The Community believes radiation from the facility threatens the health of its members, the integrity of its historical and cultural resources, and the quality of the natural environment in which Community members live.

In April of 1991 the Community enacted a tribal ordinance requiring anyone seeking to transport radioactive material across the reservation to obtain a license from the Tribal Council. On July 12, 1991 the Community enacted technical revisions to the Ordinance.

NSP challenged the Ordinance in administrative proceedings before the United States Department of the Interior, Bureau of Indian Affairs. The Bureau upheld the Ordinance. The Company then challenged the Ordinance in federal court. On December 23, 1991 the federal district court issued a preliminary injunction against enforcement of the Ordinance. The Community appealed to the Eighth Circuit Court of Appeals, which has allowed the injunction to stand pending a decision on the merits. The Company has expressed its intention to comply with the Ordinance if it should be upheld by the courts.

### **C. The Storage Facility Proposed by the Company**

The Company proposes to store spent fuel from the Prairie Island reactors in dry steel casks manufactured by Transnuclear, Inc., a company specializing in practical applications of nuclear technology. The casks will be cylindrical, with steel walls nine and a half inches thick. Each cask will be 16 feet 10 inches high and eight feet six inches wide and will hold 40 spent fuel assemblies. Fully loaded, each cask will weigh approximately 122 tons.

The casks will have double seals. The interior will be pressurized above atmospheric pressure; the space between the two seals will be pressurized above interior pressure. Should either seal begin to fail, the pressure change would be detected by a monitoring system.

The casks will be placed on concrete pads three feet thick. The entire facility will be ringed by an earthen berm above the height of the casks. Inside the berm will be two security fences and a security system designed to detect unauthorized entry. One fence will house a cask monitoring panel, showing pressure levels within the casks.

The Company requests authorization to store up to 48 casks in the facility. Forty-eight casks would provide enough spent fuel storage space for the plant to operate at full power to the end of its license period, even assuming no transportation of waste to a federal repository, with a margin for contingencies.

### **D. Federal Efforts to Deal with Nuclear Waste**

In 1954 Congress passed the Atomic Energy Act, 42 U.S.C. § 2011 et seq. The Act was intended to promote the development of civilian nuclear technology and to protect the public from any unforeseen risks by placing responsibility for nuclear safety in one central federal agency, the Atomic Energy Commission. In response to this federal initiative, many utilities, including

NSP, built nuclear power plants. The federal government assured the utilities that their spent fuel would be shipped from the plants for reprocessing at commercial reprocessing facilities within about two years of its removal from their reactors.

By the mid-1970's it was clear that reprocessing was not a workable nuclear waste management strategy, and spent fuel was accumulating in cooling pools in the nation's nuclear power plants. In 1977 the Atomic Energy Commission's successor, the Department of Energy (DOE), announced it had shifted its waste management strategy from reprocessing to permanent underground disposal. The DOE stated it would begin accepting used fuel for permanent disposal in 1983.

By 1982 it was obvious that establishing a permanent nuclear waste disposal facility would be much more difficult, technically and politically, than the DOE had expected. In 1982 Congress took up the issue and passed the Nuclear Waste Policy Act. That Act required the Department of Energy to establish two permanent nuclear waste repositories, with the first coming on line by 1998 and the second by 2003. DOE was to study the need for a Monitored Retrievable Storage facility to hold high level waste until the first permanent repository came on line. Finally, to help fund the nuclear waste management program, Congress placed a one mill per kilowatt hour surcharge on nuclear power.

By January 1987 it was clear to DOE that it would miss the 1998 statutory deadline for opening the first permanent nuclear waste repository. At that time DOE was projecting 2003 as a realistic opening date for a permanent federal repository.

Later in 1987, Congress amended the Nuclear Waste Policy Act. The amendments directed the Department of Energy to focus its efforts to establish a permanent repository on only one site, Yucca Mountain, Nevada. They authorized DOE to establish a Monitored Retrievable Storage facility for temporary storage as soon as a construction license for the permanent facility had been granted. They authorized the President to appoint a Nuclear Waste Negotiator to find a voluntary host for the Monitored Retrievable Storage facility. Finally, they restated Congress's intention for the permanent repository to open by 1998.

In 1989 DOE reported to Congress on its nuclear waste management efforts. The report explained that state and local opposition to siting a permanent repository at Yucca Mountain had delayed the siting process substantially. By the date of the report, DOE had taken legal action to force compliance with federal law. However, DOE was now projecting a start date of 2010 for a permanent federal repository. DOE asked Congress to authorize it to site a Monitored Retrievable Storage facility (MRS) without having a permanent repository under construction and to increase the 15,000 metric ton capacity limit for an MRS established by the 1987 amendments to the Nuclear Waste Policy Act.

As of the date of this Order, DOE's 1989 recommendations are still under consideration by Congress. DOE still projects 2010 as the start-up date for a permanent federal nuclear waste repository. DOE also expects to begin operating an MRS in 1998, and to begin accepting used fuel from Prairie Island in 2001. DOE expects the MRS to begin operating at low acceptance levels, however. As long as that is true, the plant will be producing more used fuel than DOE will be removing.

#### **E. Parallel Proceedings**

Since different units of government have jurisdiction over different aspects of NSP's proposal, the Company has been and continues to be a party to proceedings in several other forums.

The Company has completed proceedings before the Minnesota Environmental Quality Board on the preparation of a Final Environmental Impact Statement for the proposed facility. That proceeding resulted in the issuance of a Final Environmental Impact Statement finding no material environmental impacts from the proposed facility at the site now proposed by NSP.

The Company has filed three applications with the federal Nuclear Regulatory Commission: one to build and operate the storage facility, one to amend the plant operating license to reflect the upgrade of the auxiliary building crane, and one to amend the plant's emergency preparedness plan to reflect the existence of the storage facility. All three applications are pending.

The Company is in litigation with the Indian Community in the Eighth Circuit Court of Appeals over the legal status of the Tribal Ordinance. If the Tribal Ordinance is upheld, the Company will have to comply with its license and fee requirements.

Finally, the Company may need to obtain a building and/or a conditional use permit from the City of Red Wing before beginning construction.

#### **VI. Public Opinion**

The certificate of need statute requires the Commission to hold at least one public hearing at a time and place convenient for the public to obtain public opinion on the application. The statute also requires the Commission to designate a Commission employee to facilitate public participation in the hearing process. Minn. Stat. §216B.243, subd. 4 (1990).

The Commission, through the Administrative Law Judge, held three public hearings on this application. The Commission designated statistical analyst David L. Jacobson and engineer Michael Michaud as its liaisons with the public. The Commission encouraged the public to express opinions on the application by attending the public hearings or by filing written comments with the Administrative Law Judge. The Commission reopened the record

after it was closed by the Administrative Law Judge to admit several hundred written expressions of public comment received after the record was closed. ORDER NOTIFYING PARTIES OF INTENTION TO TAKE OFFICIAL NOTICE OF SPECIFIC MATERIALS AND TO REOPEN RECORD TO ADMIT PUBLIC COMMENTS (May 5, 1992).

The record contains letters, petitions, resolutions, and other communications expressing the opinions of over 5,000 members of the public. Most of these communications opposed nuclear waste storage in general and the proposed storage facility in particular. The Commission has carefully considered these expressions of public opinion in making its decision.

## **VII. Summary of the Major Issues**

The threshold issue in this case is whether the Minnesota Radioactive Waste Management Act, Minn. Stat. §§ 116C.705 through 116C.76 (1990), requires legislative approval before the proposed nuclear waste storage facility can be built.

The second major issue is whether the facility violates either of the two relevant environmental protection statutes, the Minnesota Environmental Rights Act, Minn. Stat. §§ 116B.01 through 116B.13 (1990), or the Minnesota Environmental Policy Act, Minn. §§ 116D.01 through 116D.11 (1990).

The final major issue is whether the Company has demonstrated need for the proposed facility, as need is defined in the certificate of need statute, Minn. Stat. § 216B.243 (1990), and its implementing rules, Minn. Rules, chapter 7855.

## **VIII. Summary of Commission Action**

The Commission concludes that the proposed facility does not require legislative approval for two reasons: (1) it is a temporary storage facility, and (2) it comes under the "point of generation" exception to the provisions of the Radioactive Waste Management Act. The Commission finds that the facility will not cause "pollution, impairment, or destruction" of the environment and therefore does not violate Minnesota's environmental protection statutes.

The Commission finds that the Company has demonstrated need for a partial certificate of need, one limited to 17 casks. Seventeen casks will allow the Company and its ratepayers to reap the benefits of full power production at Prairie Island through 2001. Until 2001, dry cask storage is the most prudent, cost-effective option for meeting the load currently served by the Prairie Island plant. All of the alternatives examined by the Company or proposed by other parties would cost the Company, and its ratepayers, more than dry cask storage, at least until the year 2001.

After 2001, it is unclear what the most prudent, cost-effective option will be. By then, research and development in renewable energy sources, conservation, and load management may have made those resources more prudent investments than dry cask storage. By then, the aging plant's capacity factor may have dropped to the point that it would be more cost-effective to replace its generation than to continue dry cask storage. By then, the federal government will either have sited a permanent repository and opened a Monitored Retrievable Storage facility, or it will still be struggling to accomplish these goals. In either case, the costs of continuing dry cask storage past 2001 will be much clearer than they are today.

The Commission will condition the limited certificate of need on Company compliance with representations made earlier in regard to its construction and operation and will require the Company to meet with the Department of Health and the Indian Community to develop procedures for monitoring actual radiation emissions from the dry cask storage facility. The Commission will require annual reports on the facility's operation and any measurable environmental effects of that operation. Finally, the Commission will require the Company to conduct full-scale contingency planning for the replacement of Prairie Island, to ensure that the Company is adequately prepared if the Prairie Island plant is partially or totally taken out of service within the next several years.

#### **IX. The Radioactive Waste Management Act Does Not Require Referring this Application to the Legislature.**

The Community and the Coalition contended that the Minnesota Radioactive Waste Management Act required legislative approval before the proposed storage facility could be built. The Administrative Law Judge agreed. The Commission disagrees.

The part of the Act requiring legislative involvement reads as follows:

Notwithstanding any provision of chapter 116H, to the contrary, no person shall construct or operate a radioactive waste management facility within Minnesota unless expressly authorized by the Minnesota legislature.

Minn. Stat. § 116C.72 (1990).

The Act defines "radioactive waste management facility" as follows:

. . . a geographic site, including buildings, structures, and equipment in or upon which radioactive waste is retrievably or irretrievably disposed by burial in soil or permanently stored.

Minn. Stat. § 116C.71, subd. 7 (1990).

The Act also defines "dispose" and "disposal:"

"Dispose" or "disposal" means the permanent or temporary placement of high level radioactive waste at a site within the state other than a point of generation.

Minn. Stat. § 116C.71, subd. 16 (1990).

#### **A. The Permanence Issue**

Much of the controversy in this case centered around the possibility that the federal Department of Energy will default on its statutory and contractual duty to remove spent nuclear fuel from Prairie Island. The parties who thought this would happen feared that Prairie Island would then become a de facto permanent nuclear waste storage facility. The Administrative Law Judge found that failure was the most likely outcome of the federal waste management effort and that the application should be evaluated with this in mind. The Commission disagrees.

To assume that the federal government will not fulfill its longstanding obligation to dispose of high level nuclear waste would violate established principles of intergovernmental comity, principles the Commission has always honored. The Commission sees no reason to refuse to honor those principles in this case. While the technical and political obstacles the Department of Energy faces are real, they are not insurmountable. The Department has shown no intention of abandoning its nuclear waste management responsibilities. The Commission has therefore based its analysis of environmental effects and its cost calculations and comparisons on the assumption that the Department of Energy will begin to remove the stored waste within a time frame reasonably close to the one enunciated by that agency.

One of the main reasons the Commission is limiting the number of casks, though, is to guard against the possibility that the federal government will be unable to site, construct, and open a permanent national repository within its projected time frame and cost constraints. Should that happen, the environmental and cost assumptions underlying this limited certificate of need will no longer apply, and other resource options will have to be re-evaluated in light of the new situation.

Finally, the Commission emphatically rejects the notion that allowing limited dry cask storage is an irreversible step toward the inevitable creation of a permanent nuclear waste storage facility at Prairie Island. Nuclear waste has been stored for years at Prairie Island in the plant's cooling pools, and it is understood that the pools are not permanent storage facilities. The pools, like the dry casks, are technically incapable of providing permanent storage. Ultimately, permanent storage must and will be provided. The Commission rejects as not credible the assumption that all federal and state officials at every level

will fail to carry out their responsibilities and will allow Prairie Island to become a permanent nuclear waste storage facility by default.

Since the proposed facility is a temporary storage facility, it does not fall within the definition of a radioactive waste management facility; it is not "a geographic site . . . in or upon which radioactive waste is retrievably or irretrievably disposed by burial in soil or permanently stored." Minn. Stat. § 116C.71, subd. 7 (1990). It therefore does not require legislative approval.

## **B. The Point of Generation Exemption**

The Act exempts from its requirements the permanent or temporary placement of waste at a point of generation. The proposed facility would be built at a point of generation, the Prairie Island plant. Legislative action on the proposed facility is therefore unnecessary.

The Community, the Coalition, and the Administrative Law Judge found the "point of generation" exemption inapplicable for three reasons: 1. The facility will not be physically connected to the plant itself; 2. The "point of generation" exemption applies only to "disposal," not to permanent storage; 3. A literal reading of the exemption would allow NSP to store waste from other plants or other states, as long as it did so at a point of generation. Each contention will be examined in turn.

The Commission begins with the assumption that the point of generation exemption has a meaning and is to be given effect. Finding that a free-standing facility on existing plant grounds is not at a point of generation would be a strained construction of the statute. "Point of generation" obviously means something other than in the reactor itself. Once that is established, there is no principled basis for distinguishing between storage within the plant and free-standing storage on the plant grounds. It would be illogical to hold that the Company could build a dry cask storage facility as a new wing of the plant without legislative approval, but would need legislative approval to build a free-standing dry cask storage facility a few hundred yards from the plant. The Commission therefore rejects the contention that "point of generation" storage must be physically connected to the building in which generation occurs.

The Commission also rejects the argument that the grammatical construction of subdivision 7 limits the point of generation exemption to disposal, as opposed to storage. That argument runs as follows. The definition of radioactive waste management facility consists of two clauses, joined by the word "or." Radioactive waste management facilities are facilities in which radioactive waste is "retrievably or irretrievably disposed by burial in soil or permanently stored." (emphasis added) Since the point of generation exemption appears only in the definition of "dispose" or "disposal," it does not apply to facilities where

waste is permanently stored. Since the parties making this argument believe the waste will be permanently stored in the dry cask storage facility, they believe the exemption does not apply.

The Commission disagrees on two counts. First, the proposed facility is not a facility where waste can or will be "permanently stored." The Company is seeking a Nuclear Regulatory Commission license to build an interim storage facility. The facility is not designed for permanent storage and cannot function in that role. It is therefore a "disposal" facility, not a "permanent storage" facility, and qualifies for the point of generation exemption even under the most restrictive reading of the statute.

More fundamentally, however, the Commission believes that the distinction between disposal and storage is spurious. By defining "dispose" or "disposal" as "the permanent or temporary placement of high level radioactive waste within the state other than a point of generation," the legislature demonstrated a clear intent to exempt nuclear waste generated and stored at nuclear power plants from the provisions of the Act, including the provision requiring legislative approval of radioactive waste management facilities. To reach a contrary result by attempting to parse the sentences of this imprecisely drafted statute does violence to its clear meaning.

Finally, the Commission does not agree with the Administrative Law Judge that the "point of generation" exemption cannot mean what it appears to mean, because such a construction theoretically would allow NSP to store waste from other plants or other states in the proposed facility. The Act contains detailed requirements in regard to transporting radioactive waste into this state. Minn. Stat. § 116C.73 et seq. It is therefore clear that the legislature did not overlook the potential for out-of-state waste entering Minnesota when it enacted the point of generation exemption.

The Commission assumes the legislature meant what it said, and that utilities may store waste at the point of generation without obtaining legislative approval. (As to the fear that NSP will store waste from other plants at Prairie Island, the Commission notes that the application is to store waste from Prairie Island only. Any proposal to store waste from any other facility would require another certificate of need proceeding, and would involve completely different considerations than this application.)

### **C. The Legislative History**

Because the statute does contain ambiguities, the Commission examined its legislative history in detail. That examination confirmed the Commission's interpretation of the statute.

The tapes of the committee hearings on the original bill and on the 1984 amendments, which added the point of generation exemption, show that the focus of the legislature's concern was

the possibility that Minnesota would become a host state for a federal nuclear waste repository. The legislature wanted to ensure that it had meaningful participation in that decision, and that it maintained control over the transportation of nuclear waste into and through the state. In both 1977 and 1984, legislators considering the bills expressed their intention that they not affect the operation of nuclear power plants operating within the state.

In a hearing before the Senate Committee on Agriculture and Natural Resources, Senator Luther, who was sponsoring the bill, explained that its purpose was to prevent nuclear waste products from being arbitrarily shipped into and through Minnesota from other states. He went on to explain, "Products created here may stay on a temporary basis until a permanent storage facility is created in another state or in this state."

This explanation was followed by testimony from Joe Foran of the Minnesota Public Interest Research Group. When asked how the bill would affect existing Minnesota nuclear power plants, Mr. Foran read a note handed to him by Commissioner Gardebring of the Pollution Control Agency: "The bill as presently drafted adequately addresses the concern about storage at the present plants." He went on to explain:

The bill basically says that until a viable alternative is created, waste can be stored at the two present sites. This isn't a bill to stop the activity of the nuclear plants operating in Minnesota now.

Similarly, on May 2, 1977 the House sponsor, Representative Hanson, stated in committee, "The important thing is to safeguard Minnesota from outside waste." Representative Osthoff reiterated, "We're talking only about transporting into Minnesota," and Representative Hanson concurred, "We don't want to hinder the businesses that are generating waste in Minnesota . . . Minnesota-generated waste was a part of the original bill, but that was deleted."

In 1984 northern Minnesota had just appeared on a federal list of possible sites for a national nuclear waste repository, prompting the 1984 amendments to the Act. Again, the focus was on guaranteeing that Minnesota's interests were adequately protected in any repository siting process. Senator Merriam, who sponsored the bill in the Senate, stated on January 24, 1984 in committee, "What we want to do here is formalize the role of the state in that siting process. We want the state to have significant participation in the process."

The committee heard testimony from Max DeLong of NSP that the state's two nuclear plants were running out of spent fuel storage space. Mr. DeLong explained that the Company planned to ship used fuel out of state as soon as possible, that if General Electric would take back its used fuel Monticello would not need additional storage as soon as Prairie Island, and that Prairie

Island would be out of storage space in 1995. Senator Merriam asked him what the Company would do if they could not move the spent fuel out of state. Mr. DeLong replied, "We will need to provide additional physical storage if we can't move it." This provoked no discussion among committee members, who moved on to a discussion of the logistics of regulating the routes for out-of-state fuel entering the state. Senator Davis reflected the tenor of committee discussion in his comment, "We know what's in the state, but we are concerned about what will be shipped through."

#### **D. Conclusion**

The Commission concludes from the language of the statute and its legislative history that the Company's application does not require legislative action.

#### **X. The Proposed Facility Will Not Violate Minnesota's Environmental Protection Statutes.**

Minnesota has two major environmental protection statutes, the Minnesota Environmental Policy Act, Minn. Stat. § 116D.01 et seq., and the Minnesota Environmental Rights Act, Minn. Stat. § 116B.01 et seq. The Environmental Policy Act establishes environmental protection as a major policy goal and requires state agencies to give environmental factors high priority in discharging their duties. The Environmental Rights Act gives individual citizens broad environmental rights and standing to enforce those rights by initiating or intervening in legal and administrative proceedings.

Both Acts apply to this application and were analyzed at length by the parties and the Administrative Law Judge. The Community and the Coalition claimed the proposed storage facility would violate both Acts. The Environmental Quality Board took no position. NSP claimed the application of the Acts was limited by federal preemption of nuclear safety issues, but that the proposed facility would not violate any portion of the Acts in any case.

The Department of Public Service and the Administrative Law Judge believed the proposed storage facility would not violate either statute. The Department of Health agreed, although it limited its examination to those environmental effects with an impact on human health.<sup>1</sup> The Commission agrees.

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<sup>1</sup> The Department of Health was relying on the Company making minor adjustments to its original proposal, as set forth in section **XIV**.

## **A. The Legal Standard**

The Environmental Policy and Environmental Rights Acts use nearly identical language to describe agencies' environmental obligations. The Environmental Policy Act describes those obligations as follows:

No state action significantly affecting the quality of the environment shall be allowed, nor shall any permit for natural resources management and development be granted, where such action or permit has caused or is likely to cause pollution, impairment, or destruction of the air, water, land or other natural resources located within the state, so long as there is a feasible and prudent alternative consistent with the reasonable requirements of the public health, safety, and welfare and the state's paramount concern for the protection of its air, water, land and other natural resources from pollution, impairment, or destruction. Economic considerations alone shall not justify such conduct.

Minn. Stat. § 116D.04, subd. 6 (1990).

The Environmental Rights Act describes agencies' duties as follows:

In any such administrative, licensing, or other similar proceedings, the agency shall consider the alleged impairment, pollution, or destruction of the air, water, land, or other natural resources located within the state and no conduct shall be authorized or approved which does, or is likely to have such effect so long as there is a feasible and prudent alternative consistent with the reasonable requirements of the public health, safety, and welfare and the state's paramount concern for the protection of its air, water, land and other natural resources from pollution, impairment, or destruction. Economic considerations alone shall not justify such conduct.

Minn. Stat. § 116B.09, subd. 2 (1990).

Minn. Stat. § 116B.02, subd. 5 (1990) defines "pollution, impairment, or destruction" as follows:

"Pollution, impairment or destruction" is any conduct by any person which violates, or is likely to violate, any environmental quality standard, limitation, rule, order, license, stipulation agreement, or permit of the state or any other instrumentality, agency, or political subdivision thereof which was issued prior to the date the alleged violation occurred or is likely to occur or any conduct which materially adversely affects or is likely to materially adversely affect the environment; . . .

In short, "pollution, impairment, or destruction" can be proved in two ways. First, it can be proved by showing the violation of an environmental quality standard, limitation, rule, order, license, stipulation agreement, or permit. Second, it can be proved by showing that material adverse environmental effects have occurred or are likely to occur.

## **B. The Department of Health's Cancer Risk Standard**

The proposed storage facility was alleged to violate only one "environmental quality standard, limitation, rule, order, license, stipulation agreement, or permit": a cancer risk standard sponsored by the Minnesota Department of Health. The Department of Health took the position, in this proceeding and in the Environmental Impact Statement proceeding before the Environmental Quality Board, that no single environmental source should pose a lifetime cancer risk greater than one in 100,000 to any person. That risk translates into an average radiation exposure level of 0.054 millirem per year, according to expert testimony submitted by the Department of Health.

The Health Department believed the risk to the closest resident exceeded that standard under the Company's initial proposal. The Company then moved the site of the proposed facility from alternate site I to alternate site IV and agreed to enclose all four sides with an earthen berm. The Health Department concluded that the shift in location brought the annual radiation exposure of residents within the acceptable range of below 0.054 millirem per year, and the cancer risk within the acceptable range of less than one in 100,000 per lifetime. The Administrative Law Judge agreed. The Commission agrees as well.

The Community and the Coalition challenged the credibility of the Company's radiation emission projections, because the projections in its initial Nuclear Regulatory Commission filing exceeded those filed in this proceeding, and the Minnesota Department of Health standard. The Community and Coalition argued that the first estimate was more trustworthy, since it clearly was not prepared with the Department of Health standard in mind.

The Company explained that the Nuclear Regulatory Commission (NRC) uses a much higher acceptable off-site radiation standard than the Department of Health (25 millirems per year as opposed to .054 millirem per year), but that the NRC also calculates radiation exposure using worst case assumptions it does not expect to materialize. The Company explained and supported the methodologies it used in calculating both its NRC radiation exposure projections (0.08 millirem per year) and the projections it filed in this proceeding (0.016 millirem per year).

The Administrative Law Judge found as a fact that the average radiation dose to the nearest resident would be 0.016 millirem per year, well within the Department of Health standard. He also found as a fact that that level of radiation is indistinguishable

from background radiation and undetectable by standard radiation measurement techniques. The Department of Health concurred in both findings. The Commission accepts and adopts both findings. Since the cancer risk standard was the only "environmental quality standard, limitation, rule, order, license, stipulation agreement, or permit"<sup>2</sup> the proposed facility was alleged to violate, the Commission concludes the facility does not cause "pollution, impairment or destruction" of the environment under the first statutory test. The Commission will move to the second test, whether the facility will "materially adversely affect the environment."

### **C. Material Adverse Environmental Effects**

#### **1. Historical and Cultural Resources**

The Community and Coalition alleged that the proposed storage facility will have material adverse effects on air, water, land, and other natural resources, especially the historical and cultural resources of the Prairie Island Mdewakanton Sioux Indian Community. The Commission respects the fact that the Community's traditional relationship with the land differs in many respects from prevailing attitudes toward property ownership within the majority culture. It is possible that the proposed facility would be met with more cultural dissonance at Prairie Island than at some other locations. That alone, however, is not a material adverse environmental effect.

The Commission agrees with the Administrative Law Judge that the record does not support a finding that the Community's historical and cultural resources would be materially adversely affected by the construction of the proposed facility. The Community, together with its historical and cultural resources, is thriving despite the presence of the plant itself. The plant is far more intrusive than the earth-sheltered dry cask storage facility the Company proposes to build. The Commission concludes that the Community's historical and cultural resources will not be materially adversely affected by the proposed facility.

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<sup>2</sup> The Administrative Law Judge found that the Department of Health standard was not a rule duly promulgated under the Administrative Procedure Act, Minn. Stat. § 14.01 et seq., and therefore could not be considered an "environmental quality standard, limitation, rule, order, license, stipulation agreement, or permit." The Commission finds it unnecessary to reach this issue, since the standard is clearly competent evidence which ought to be given serious consideration. The Minnesota Department of Health is clearly qualified to offer expert testimony on acceptable levels of radiation exposure. The Commission finds that testimony credible and persuasive.

## 2. Public Concerns

The Community, the Coalition, and the Environmental Quality Board argued that projects like this, by their very nature, trigger deep environmental concerns, which can be a factor in determining whether "pollution, impairment, or destruction" have occurred or are likely to occur. Simply stated, the Community and Coalition argued that radioactivity is a pollutant, the proposed facility will emit some radioactivity, and the best course of action is therefore to deny the certificate of need application. The Environmental Quality Board argued that the intensity of public debate surrounding a project may be a factor in deciding whether or not it violates the environmental protection laws. The Commission disagrees with these positions.

It is true that public opinion plays a special role in certificate of need proceedings. The statutes governing most Commission proceedings do not require the Commission to encourage and facilitate public participation in the hearing process; the certificate of need statute does. The legislature apparently assumed that public input would be valuable in certificate of need proceedings, and the Commission agrees that it is. The purpose of encouraging public input, however, is not to hold a public referendum on the need for large energy facilities. It is rather to ensure that the Commission has the broadest possible understanding of every facet of the application. Once the Commission is fully informed, through evidentiary proceedings and public comment, it has a duty to exercise its best judgment and its institutional expertise in reaching a decision.

Without public comment, it is all too likely that the Commission would remain ignorant of local concerns or of emerging public consensus on broad policy issues. In this case, for example, the Commission was heartened to see increased public awareness of and commitment to conservation. This commitment, together with cost concerns and the public's clear reservations about all forms of nuclear waste storage, influenced the Commission's decision to limit the number of casks and to monitor federal waste management efforts carefully.

The Commission agrees with the Administrative Law Judge that intense public debate obligates the Commission to take a very "hard look" at an application, but does not justify an application's denial. The Commission has a duty to make its decision based on the law, the evidence, and sound public policy. Since those considerations pointed to granting a limited certificate of need in this case, it would have been irresponsible to deny it.

Finally, following the "intense public debate" line of reasoning could lead not only to denying certificates that should be granted but to granting certificates that should be denied. It could result in approving facilities that did pollute, but were not perceived to pollute by the commenting public, or to approving facilities that were located in areas where the

commenting public did not object to pollution. The Commission believes it has a duty to weigh the evidence in each case and to make its best judgment, with public opinion being one of many sources of information.

#### **D. The Environmental Impact Statement**

Under the Environmental Policy Act, Minn. Stat. § 116D.01, subd. 2a, all agency actions with the "potential for significant environmental effects" must be preceded by a detailed environmental impact statement. In this case the Environmental Quality Board (EQB) accepted a Final Environmental Impact Statement, prepared by its staff, after an eighteen month process that included public hearings. After detailed analysis, the Final Environmental Impact Statement concluded that the proposed facility would have no significant environmental impacts. The Commission holds the objectivity and expertise of the EQB staff in high regard and gives the Environmental Impact Statement significant weight in finding that the proposed facility will not materially adversely affect the environment.

### **XI. The Company has Demonstrated Need for a Limited Version of the Proposed Facility under the Certificate of Need Statute and Rules.**

#### **A. The Legal Standard**

##### **1. The Current Statute**

The certificate of need statute, Minn. Stat. § 216B.243 (1990), requires the Commission to establish criteria for assessing the need for large energy facilities and lists factors the Commission must take into account. Those factors are as follows:

- (1) the accuracy of the long-range energy demand forecasts justifying the need for the facility;
- (2) the effect of existing or possible energy conservation programs on long-term energy demand;
- (3) how the facility relates to overall state energy needs, as described in the most recent state energy policy and conservation report prepared by the Commissioner of the Department of Public Service;
- (4) promotional activities which may have contributed to the need for the facility;
- (5) socially beneficial uses of the facility's output, including protecting or enhancing environmental quality;

- (6) effects of the facility in inducing future development;
- (7) alternative means of satisfying the energy demand the facility is meant to satisfy, including but not limited to increasing the efficiency of existing generating facilities;
- (8) policies, rules, and regulations of other state and federal agencies and local governments;
- (9) any feasible combination of energy conservation improvements required under the Conservation Improvement Program statute, Minn. Stat. § 216B.241, that could replace part or all of the energy of the proposed facility at competitive costs.

Minn. Stat. § 216B.243, subd. 3 (1990).

## **2. The 1991 Amendments**

In 1991 the legislature amended the certificate of need statute to require applicants to prove that need could not be met more cost effectively through conservation, load management, or generation from renewable resources. By their terms, the renewable energy portions of the 1991 amendments do not apply to applications pending at the time of enactment. The Commission believes it would be inappropriate to apply the other portions of the amendments as well.

The application and the record in this proceeding are extraordinarily complex and lengthy; the proceeding has already lasted fifteen months. The Commission believes expanding the issues after the application was accepted, which was a three-month process in and of itself, would be unfair to the Company and the parties.

Furthermore, the ability of load management and conservation to replace the need for the proposed facility are central issues in this case, fully developed in the record. They will be examined and resolved under the existing certificate of need rules. The outcome of this case would therefore be the same whether or not the Commission applied the amendments. The narrow technical issue of whether or not the 1991 amendments apply is therefore basically moot.

## **3. The Certificate of Need Rules**

The Commission's certificate of need rules incorporate and expand on the statutory factors. Those rules require the Commission to issue a certificate of need when the following requirements have been met.

- (1) the probable direct or indirect result of denial would be an adverse effect upon the future adequacy, reliability, safety, or efficiency of energy supply to the applicant, to the applicant's customers, or to the people of Minnesota and neighboring states, considering:
  - (a) forecast accuracy;
  - (b) the effects of ongoing or planned conservation programs;
  - (c) whether promotional programs have contributed to the need for the facility;
  - (d) the ability of facilities which do not require certificates of need to meet future demand;
  - (e) the effect of the proposed facility on the efficient use of resources.
- (2) a more reasonable alternative to the proposed facility has not been demonstrated to exist, considering:
  - (a) the comparative size, type, and timing of the facility and its alternatives;
  - (b) the cost of the facility and the energy it produces, compared to the cost of alternatives and the energy they would produce;
  - (c) the facility's effects on the natural and socioeconomic environments, compared to the effects of the alternatives;
  - (d) the comparative reliability of the facility and the alternatives.
- (3) the consequences of granting the certificate are more favorable to society than the consequences of denying it, considering:
  - (a) the relationship of the facility to overall energy state needs;
  - (b) the effects of the facility on the natural and socioeconomic environments compared to the effects of not building the facility;

- (c) the effects of the proposed facility in inducing future development;
  - (d) the socially beneficial uses of the facility's output, including the protection or enhancement of environmental quality.
- (4) it has not been demonstrated that the design, construction, operation, or retirement of the facility will fail to comply with relevant policies, rules, and regulations of other state and federal agencies and local governments.

Minn. Rules, part 7855.0120.

The rule's criteria are interrelated, but will be addressed individually, since the rule requires written findings on each of them. Minn. Rules, part 7855.0100. All four criteria cut in favor of granting a limited certificate of need.

The Commission will begin with the second criterion, whether there are more reasonable alternatives to the proposed facility, because that issue is central to much of what follows. The other three criteria will then be addressed.

## **B. The Existence of More Reasonable Alternatives**

The certificate of need rules require the applicant to outline in its application all reasonable alternatives to the proposed facility and the applicant's reasons for declining to propose each alternative. Minn. Rules, part 7855.0610. The rules anticipate that intervenors will both support alternatives identified by the applicant and advance alternatives of their own. The Commission is required to give all alternatives careful scrutiny. Minn. Rules, part 7855.0120, clause B.

### **1. Alternative Means of Handling Spent Fuel**

The record includes discussion of the following methods of handling spent fuel other than dry cask storage: reprocessing, reracking, two-tiered racking, fuel rod consolidation, and building more pool space. Reprocessing is next to impossible, since there is no reprocessing facility in the United States accepting commercial waste. Reracking, two-tier racking, fuel rod consolidation, and building more pool space were not the first choice alternatives of any party. The Community did state it preferred reracking to dry cask storage, but this preference was based on the assumption that dry cask storage, in any form, would inevitably lead to a permanent nuclear waste storage facility at Prairie Island.

The Administrative Law Judge found as a fact that reracking, two-tiered racking, fuel rod consolidation, and all forms of pool storage were technically inferior to dry cask storage due to

substantially higher risks of accidents and worker exposure. The Commission accepts and adopts those conclusions.

Finally, since reracking, two-tiered racking, and fuel rod consolidation all entail higher health and safety risks than dry cask storage, those alternatives also entail higher social and overall costs. The Commission rejects them for reasons of cost and practicality.

## **2. Alternative Means of Replacing Prairie Island's Generation**

### **a. The Parties' Positions**

The Company stated that denial of this application would require that it immediately begin construction of two gas peaking plants and fast track planning of a new baseload facility to replace the 1060 megawatts of capacity the Prairie Island plant contributes to its system. The Company pointed out that its 1992 generation capacity (6,798 megawatts) is less than its projected 1992 demand (6,926 megawatts), and that it will make up the difference through purchased power. The Company noted that its energy demand forecast, which was found to be reasonably accurate by the Administrative Law Judge (and by the Commission, in section **XI. C.**) projects annual growth of 2.06%. Although the Company's conservation and load management goals will reduce the need for supply-side resources to meet new demand, they will not eliminate it. In short, the Company maintained its system was not in a position to absorb the loss of Prairie Island's generating capacity without costly new supply side investments.

The Community and the Coalition contended the Company could replace Prairie Island's power, at costs comparable to those of running the plant and building the proposed storage facility, by using an approach which came to be called the "stretch out" alternative. Under the stretch out alternative, the Company would use a combination of resources (conservation, demand-side management, wind and biomass generation, and purchased power) to replace as much of the plant's normal output as possible, and would run the plant at partial power to make up the deficit. Running the plant at partial power would "stretch out" the remaining pool space and buy time for two purposes: 1.) to develop and perfect alternatives to nuclear power and fossil fuel power, and 2.) to determine whether or not the federal government would succeed in establishing a permanent nuclear waste repository. Finally, the Community and Coalition believe this application places the Commission at a policy crossroads, and presents an opportunity to develop sound alternatives to traditional, polluting generation technologies.

The Community and Coalition argued the only reason "stretch out" appeared more expensive than Prairie Island generation was that society failed to recognize the true costs of nuclear power in ratemaking. They also argued a proper understanding of the costs of nuclear power would lead society to adopt policies promoting

the development of renewable energy sources, especially policies to assist renewable energy entrepreneurs attract capital. Finally, these parties argued the Company and the Department had failed to perform their obligation to conduct detailed studies of the precise social costs of the stretch out alternative. They argued the Commission should not reject the stretch out alternative on cost grounds without ordering further development of the record on these issues.

The Department of Public Service (the Department) took a middle ground. The Department contended that dry cask storage was the most reasonable and least-cost option until the year 2000, based on a comparison between the social costs of nuclear generation with dry cask storage and the social costs of what the Department considered viable alternatives. (The Department did not conduct full social cost studies of wind and biomass generation, because it considered those technologies still in the developmental stage.) Whether dry cask storage would continue to be the best option after 2000 would depend mainly on the status of federal nuclear waste management efforts. If no federal repository was in sight by 2000, it might be too expensive to continue adding dry casks to the storage facility. If the federal waste disposition surcharge on nuclear power should rise to 21 mills per kilowatt hour (it is currently one mill per kilowatt hour), the nuclear option might no longer be cost-justified. The Department recommended granting a certificate of need for 14 casks, enough to keep the plant running until the year 2000, when future costs would be clearer.

The Department also recommended 14 casks because that would be the number required if the Department of Energy installed a Monitored Retrievable Storage facility (MRS) under its current timetable and began accepting spent fuel at high acceptance rates. The Department of Energy, however, expects to accept spent fuel at low acceptance rates during the first few years of the MRS's operation. The Department's 14-cask recommendation is based in part on the belief that a 14-cask limit would increase pressure on the Department of Energy to find a solution to the nuclear waste dilemma.

## **b. Commission Action**

### **i. Overview**

The Administrative Law Judge concluded upon review of the entire record that the stretch out alternative was feasible, but would cost more than a temporary dry cask storage facility. He found that the record did not contain definitive cost comparisons, but that the parties probably could produce them quickly if necessary. The Commission accepts and adopts the findings that stretch out is feasible and more expensive than the proposed facility. As set forth below, the Commission also finds stretch out imprudent and impractical, making more precise social cost calculations unnecessary.

The certificate of need statute and rules require the Commission to take a system-wide (and even state- and region-wide) view in evaluating applications for large energy facilities.<sup>3</sup> This means that the issue in this case is not the narrow one of whether, by carefully planning, skillfully juggling alternative resources, and hoarding remaining storage space, NSP can somehow replace Prairie Island's generation. The issue is whether those measures represent the soundest strategy for meeting the energy needs of NSP's service area and the state over the next decade. The Commission believes they do not. The Commission believes stretch out would cause substantial rate increases, jeopardize system reliability, and compromise the Company's ability to devote the time and resources necessary to develop sound long term strategies for meeting the needs of its service area.

## **ii. Commission Analysis of Stretch Out**

The primary resources that make up the stretch out alternative are conservation, load management, purchased power, wind energy, biomass energy, and partial generation from Prairie Island.

It is clear that conservation and load management cannot by themselves replace Prairie Island. The Commission accepts and adopts the Administrative Law Judge's findings that NSP's estimate of achievable levels of demand side management (3700 gigawatt hours by 2010) is unreasonably low, and that 5400 gigawatt hours is a more reasonable goal. However, not only will those savings not replace Prairie Island, they will not even begin to offset expected increases in demand, currently running at 2.06% per year.

Furthermore, 5400 gigawatt hours of energy saved by conservation are not interchangeable with 5400 gigawatt hours of generating capacity, since they cannot be dispatched by the utility as needed. Their availability depends on consumer usage patterns, which are generally linked to time of day. To put it in technical terms, the "capacity factor" of conservation is lower than the capacity factor of baseload generation. The Company estimates the blended capacity factor of its conservation programs at 40%, while Prairie Island's capacity factor exceeds 80%.

Therefore, conservation and load management, as crucial as they are to a sound long term energy strategy, cannot be viewed as realistic replacements for Prairie Island generation. Furthermore, the Commission believes energy savings achievable through conservation and load management should more properly be

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<sup>3</sup> See, for example, the statute's emphasis on how the facility relates to "long-term energy demand" and "overall state energy needs." Similarly, the rules require consideration of the proposed facility's effects on the energy supply of the applicant, the applicant's customers, and the people of Minnesota and neighboring states.

used to defer the need for new generating facilities, which would impose new, higher costs on ratepayers and the environment, or to retire NSP's oldest, most polluting plants, than to retire one of its most cost-efficient generating facilities.

Purchased power, another component of the stretch out alternative, is more expensive than Prairie Island in terms of direct costs. It is also probably more expensive in social cost terms, since most of the power currently available for purchase is fossil fuel-derived and has higher social costs, due to emissions, than nuclear power. (See Application, Vol. 1, Exhibit 1, p. 72.) Furthermore, the Commission accepts and adopts the Administrative Law Judge's finding that available purchased power supplies are dwindling as the decade progresses, raising costs and reducing utilities' ability to rely on purchased power for baseload needs.

Sweet sorghum (biomass) generation, another component of the stretch out alternative, may have significant long term potential. However, the Commission accepts and adopts the Administrative Law Judge's finding that this technology is not currently reliable enough to be an integral part of meeting baseload demand. In fact, there are currently no sweet sorghum generating plants in Minnesota, making it extremely difficult, if not impossible, to reach reliable conclusions about how the technology would work and what it would cost.

Wind energy is closer to being a reliable and cost-effective source of power than sweet sorghum, but wind technology remains experimental in many respects. It is clearly still in the developmental stage. Its comparatively low capacity factor, estimated by the Administrative Law Judge at an annual average of 39%, presents major reliability problems. The parties suggest capacity factor and reliability can be improved by using wind turbines with back up capacity powered by natural gas. This is an innovative approach that may hold promise, but it is premature to rely on combination turbines to meet current need. NSP currently has only three wind generating facilities, giving the Company and regulators little experience to draw on in judging the technology's overall efficiency, reliability, and cost.

The Commission is intrigued by the successful performance of wind facilities in California, documented in the record, and believes wind's potential should be investigated more thoroughly by NSP and other Minnesota utilities. It would be more appropriate to do this as part of a resource planning process, however, with future demand in mind, than to put the burden of meeting existing demand on this new resource.

Furthermore, wind power is currently more expensive than Prairie Island generation. Stretch out proponents argue this is largely due to inappropriate regulatory treatment, and cite as examples the need for municipal bonding authority and longer capital investment amortization periods. Neither of these two tools is entirely, or even primarily, in the hands of the Commission,

however. The Commission is committed to exploring ways to make wind generation (as well as biomass, photovoltaics, and other renewables) cost-effective, but does not believe this proceeding is the best place to do that.

Finally, there are potential technical difficulties associated with running the Prairie Island reactors at partial power and with restarting a reactor that has been mothballed to stretch out the remaining pool space. Also, sound cost allocation principles and equitable concerns could require accelerated depreciation of the Prairie Island investment and accelerated recovery of decommissioning expenses if the Prairie Island facility were partially or completely closed ahead of schedule.

In short, the stretch out alternative, while probably technically feasible, would impose higher costs on ratepayers and the Minnesota economy than dry cask storage. It would jeopardize reliability by substituting unproven technologies and technologies with low capacity factors for two of the most reliable nuclear reactors in the world. It would also put the Company in something close to a crisis mode. The sufficiency and reliability of its power supply would become serious issues; they would have to take priority over cost concerns. The Company's ability to address the future energy needs of its service area in a comprehensive manner would be compromised. The Company would have to focus primarily on the balancing act required to meet daily load.

The Commission believes it is unnecessary to incur the expense and uncertainty of the stretch out scenario at this juncture. As will be discussed more fully below, the Commission believes it is more prudent and cost-effective to allow the Company to use limited dry cask storage in the near term, to examine the continued usefulness of that strategy in 2001, and to require comprehensive contingency planning in the mean time. If dry cask storage is no longer the least-cost option in 2001, all stakeholders will have a clearer understanding of the costs and benefits of all meaningful alternatives.

### **iii. Commission Analysis of the Department's Position**

The Commission is in basic agreement with the Department that limited dry cask storage is the most reasonable near term strategy for dealing with Prairie Island's shortage of spent fuel storage space. The Commission believes that limiting the certificate to the 14 casks proposed by the Department, however, would probably result in a second certificate of need proceeding shortly before better information on the federal nuclear waste storage effort became available.

The 14 casks would allow full scale operations at Prairie Island through the end of 1999. (This assumes the Company would reserve space in the storage pools for a full core off-load of both reactors, something not required under Nuclear Regulatory

Commission regulations, but considered a prudent management practice by the Company.) To prevent shutdown at the end of 1999, the Company would have to apply for a new certificate of need in 1998, and do much of the research and analysis necessary to support the application months beforehand. Since the Monitored Retrievable Storage (MRS) facility is not scheduled to open until 1998, reliable information on that facility's performance is not likely to be available when the application is prepared.

The Commission believes it would benefit everyone to defer any second certificate of need proceeding until the 1998 MRS milestone is past. Granting a certificate for 17 casks would allow full scale generation at Prairie Island through 2001. By then the status and costs of the federal waste management effort will be much clearer. The DOE will either have met or failed to meet its goal of siting and opening an MRS by 1998. Department of Energy timetables for removing waste from Prairie Island will either be firmer and more reliable, or more clearly undeserving of serious reliance. The federal waste management surcharge on nuclear power will either be rising sharply or general appropriations for waste management will have increased. However the facts develop, they will be clearer by 2001, allowing more informed decisionmaking than a proceeding in 1998 or 1999.

Other issues should be clearer then as well. The capacity factor of the Prairie Island plant as it ages will be clearer in 2001 than 1999. The costs, reliability, and generating potential of renewable energy sources will be clearer in 2001. Achievable savings from demand side management will be clearer by then. The costs and logistics of all alternatives to Prairie Island generation will be known with more certainty, through the comprehensive contingency planning required under this Order. In short, the Commission will be in a better position to make an informed decision under the 17-cask than the 14-cask scenario.

Finally, the Department's 14-cask recommendation is based in part on a desire to maintain the pressure on the Department of Energy (DOE) to fulfill its waste management responsibilities. For example, the 14-cask limit is based on the assumption the MRS will begin accepting waste at high acceptance levels in 1998, as required by Congress, even though DOE has stated it expects to begin accepting waste at low acceptance levels. The Commission prefers to express its concerns directly to DOE and to base this decision exclusively on the facts in the record, which include DOE's statement that it will not take waste at high acceptance rates in 1998.

For all the reasons set forth above, the Commission concludes the most reasonable action on this application is to grant a limited certificate of authority for 17 casks.

### **C. The Effect of Denying the Certificate on the Adequacy, Reliability, Safety, or Efficiency of Future Energy Supply**

The Commission agrees with the Administrative Law Judge that, more likely than not, the certificate could be denied without completely sacrificing the adequacy, reliability, or safety of the future energy supply of this state, neighboring states, or NSP's customers. NSP could probably meet its customers' energy needs even if Prairie Island closed in 1995 for lack of spent fuel storage space. The Company could go into a crisis mode, launch a crash construction program, promote conservation and load management even at the expense of cost-effectiveness, invest heavily in emerging generation technologies, and fill in the gaps with purchased power. The Commission believes, however, that denying the certificate would adversely affect the efficiency of the Company's energy supply and would jeopardize its reliability.

#### **1. Efficiency**

The rule requires that denying the certificate not adversely affect the efficiency of future energy supply. Denying this certificate, and forcing the retirement of the Prairie Island plant in 1995, would adversely affect the efficiency of future energy supply. As section **V. A.** explains in detail, with the exception of Monticello and NSP hydro facilities, Prairie Island is the Company's most cost-efficient plant. It is also more cost-efficient than any of the alternatives examined in this proceeding. (This is developed in greater detail in the section discussing alternatives to the storage facility.) The Administrative Law Judge concluded, and the Commission agrees, that replacing the plant with any known alternative or set of alternatives would cost consumers more than building the storage facility and allowing the plant to continue operating. Therefore, the rules' first standard, the effect of denial on future energy supply, cuts in favor of granting the certificate in some form.

#### **2. Reliability**

The Commission also believes the reliability of the Company's energy supply would be jeopardized, if not adversely affected, by the alternatives to dry cask storage proposed by the parties. The Commission has discussed above the low capacity factors of wind generation and conservation, the developmental status of renewable technologies, the declining availability of purchased power, the potential technical difficulties of operating Prairie Island's reactors at less than full power, and the uncertainties connected with restarting a mothballed reactor. All these factors raise serious concerns about reliability.

#### **3. Other Factors**

When considering the "effect on future energy supply," the Commission is required to consider several sub-issues. None of

these changes the findings that denying the certificate would have an adverse effect on the efficiency, and a potentially adverse effect on the reliability, of future energy supply.

The Commission agrees with the Administrative Law Judge that NSP's future need forecast is reasonably accurate for purposes of this proceeding. The Commission finds, like the Administrative Law Judge, that conservation programs cannot eliminate the need for the facility at costs lower than or equal to the cost of the facility. The Commission agrees with the Administrative Law Judge that promotional programs have not contributed materially to the need for the proposed facility. The Commission finds nothing in the record to support a finding that facilities not requiring certificates of need (e.g., purchased power from power pools, cogenerated power, power from qualifying facilities) could eliminate the need for the facility. The Commission concludes that denying the application outright would adversely affect the efficiency of future energy supply in this state. The Commission also concludes outright denial would place reliability in jeopardy.

#### **D. Consequences to Society of Granting or Denying Certificate**

The certificate of need rules require the Commission to weigh the social consequences of granting the certificate against the social consequences of denying it. In making this analysis the Commission is to consider the relationship of the facility to the state's overall energy needs, the effects of the facility on the natural and socioeconomic environments, the effects of the facility in inducing future development, and the socially beneficial uses of the facility's output, including the protection or enhancement of environmental quality. The Commission is convinced the benefits of granting the limited certificate of need outweigh the benefits of denying it.

It is clear from the record that denying the certificate of need for the proposed facility would result in a significant rate increase for the hundreds of thousands of Minnesota households and businesses receiving service from NSP. While the Commission grants rate increases when utilities prove them necessary under the rate change statute, Minn. Stat. § 216B.16, the Commission is acutely aware of the effects these increases have on ratepayers. NSP estimated that a shutdown of Prairie Island later in this decade would cause a cumulative rate increase exceeding one billion dollars (in 1990 dollars).

For low income households, rate increases can cause serious hardship. For that reason, the legislature has required, and the Commission has adopted, Cold Weather Rules, Minn. Rules, part 7820.1600, et seq. Those rules prohibit disconnection of utility service affecting the applicant's primary heat source, which usually includes the applicant's electric service, during the heating season. Higher rates increase the number of households facing disconnection crises. They also harm low income and fixed

income households generally, by reducing the funds available to meet non-utility needs. For that matter, households of every income level feel the effect of rate increases to some degree.

Similarly, the price of electricity affects industrial and commercial siting decisions, and all forms of economic development. In recent sessions the legislature has recognized this by requiring the Commission to experiment with economic development rates (Minn. Stat. § 216B.161) and to allow electric utilities to offer flexible rates to large customers with the ability to bypass their local electric utility (Minn. Stat. § 216B.162). To allow rates to increase to avoid building this storage facility would conflict directly with these public policy goals.

Of course, denying the certificate would also harm those with more direct economic ties to the Prairie Island plant -- the approximately 400 plant employees and their families; Goodhue County and the city of Red Wing, whose economies benefit from Prairie Island salaries and property taxes; the local school district, which benefits from the property taxes and increased prosperity the plant brings. While these concerns are secondary to state-wide and public policy concerns, they are legitimate and must be taken into account.

A Department witness who testified on the rate effects of replacing Prairie Island generation did conclude that no rate increase that could reasonably be expected to result from denying this certificate would be so high as to constitute a "public policy disaster." The Commission agrees, but believes there is room here to do more than avoid a public policy disaster, or even a near-miss. Because rate levels have serious effects on individuals, businesses, and the general economy, the Commission considers the rate issue critical. The rate increases that would result from denying this application would clearly harm many Minnesota households and businesses. They would inhibit economic growth and development to some degree. The Commission believes these negative consequences can be responsibly avoided by granting a limited certificate of need.

Of course, granting the certificate would conflict with the expressed desires of the people living nearest the plant. It would run contrary to the public policy judgments of the members of the public interest groups who have formed the Prairie Island Coalition Against Nuclear Storage. It might put less pressure on the federal government to fulfill its nuclear waste management responsibilities than denying the certificate of need. It might put less pressure on the Company to commit to fast track development of innovative generation technologies. On the other hand, it is the public policy of this state to develop those technologies to their full potential, and that will be done, in part through the contingency planning process required under this Order. The Commission concludes that the advantages to society on the whole of granting a limited certificate of need outweigh the disadvantages.

#### **E. Company Compliance with Requirements Imposed by Other Units of Government**

The Company has stated that in constructing and operating the proposed facility it will comply with all requirements legally imposed by other units of government. These would include, but are not necessarily limited to, license requirements imposed by the Nuclear Regulatory Commission, building permit requirements imposed by the City of Red Wing, and, if upheld by the federal courts, the Tribal Ordinance. The Commission will condition the limited certificate of need upon compliance with such requirements.

#### **XII. The Coalition's Motion to Strike the Application**

The Coalition moved to strike the Company's application on grounds that it was, in reality, an application for a permanent nuclear waste storage facility. The merits of that substantive claim have been considered and discussed above, and the motion is therefore denied.

#### **XIII. Conditions on the Limited Certificate**

In the course of this proceeding NSP made representations, in addition to those in its application and testimony, about how it intended to construct and operate the proposed facility. Some of these representations involved changes in the Company's original proposal. Others were merely clarifications of the Company's original design and operation specifications. The parties, the Administrative Law Judge, and the Commission have relied on these representations in reaching their conclusions. The Commission considers these representations integral to the Company's proposal and binding on the Company. The representations are set forth below.

The Company changed the site of the proposed facility from site I to site IV, agreed to enclose all four sides with an earthen berm higher than the tops of the casks. The Company agreed that fuel stored in the facility would have been cooled for an average of 15 years and would have an average fuel burnup of 40,000 MWD/MTU. The Company assured all parties that the radiation exposure of the nearest Prairie Island resident would never exceed .054 millirem per year. Finally, the Company stated its willingness to consult with the Department of Health and the Indian Community to develop a procedure for monitoring actual radiation doses from the facility over the life of the project.

The Company's projections of radiation levels are based on existing levels of foliage and tree cover, requiring maintenance of existing levels of foliage and tree cover throughout the life of the facility.

The Commission accepts the Company's representation that it is prudent to reserve pool storage space for a full core off-load and will require the Company to reserve adequate pool space for that purpose when it becomes available. (Currently, there is not enough empty pool space for a full core off-load of both reactors.)

The Company will be required to file an annual report on its nuclear waste storage program, including full details of any technical difficulties encountered with pool or dry cask storage, and the results of its radiation monitoring program. The Company will of course be prohibited from storing waste from any facility other than Prairie Island in the dry cask storage facility.

The Commission will require the Company to construct and operate the facility in full compliance with the rules and regulations of other governmental entities, including full compliance with the Tribal Ordinance, if upheld by the courts. The Company will notify the Commission and all parties within 15 days of its receipt of Nuclear Regulatory Commission decisions on its applications to build the facility, to upgrade the crane to handle the casks, and to approve its amended emergency preparedness plan.

Finally, the Company will be required, as part of its next biennial resource planning process, to conduct detailed analyses of the feasibility and cost of different strategies for replacing Prairie Island generation, should the need arise.

#### ORDER

1. Northern States Power Company's (the Company) application to build a temporary dry cask nuclear waste storage facility is granted in part, as set forth below.
2. The Company may place no more than 17 casks in the facility.
3. The Company may store no waste other than spent fuel from the Prairie Island plant in the dry cask facility.
4. The Company shall construct and operate the facility in compliance with all representations made in its application and the course of this proceeding, specifically including the following:
  - a. The facility shall be constructed on alternate site IV;
  - b. The facility shall be surrounded on all sides by an earthen berm constructed and maintained higher than the tops of the casks;

- c. The casks shall be cylindrical and have steel weather covers;
  - d. Spent fuel stored in casks shall have been cooled for an average of 15 years and shall have an average fuel burnup of 40,000 MWD/MTU;
  - e. Radiation exposure to the person living nearest the plant shall at no point exceed .054 millirem per year;
  - f. The Company shall maintain existing levels of foliage and tree cover surrounding the facility.
5. When enough pool space to accommodate a full core off-load of both reactors has been cleared, the Company shall maintain full core off-load capacity for both reactors, in the absence of a Commission Order to the contrary.
6. Within 60 days of the date of this Order, the Company shall file a plan for monitoring radiation from the dry cask facility. The plan shall be prepared after consultation with the Minnesota Department of Health and the Prairie Island Indian Community.
7. The Company shall file an annual report on its nuclear waste management program at both nuclear power plants, including, but not necessarily limited to, the following information:
- a. Current pool inventory at both plants, including full core off-load capability;
  - b. Current cask inventory and projected date for reaching 17 casks;
  - c. Any technical difficulties encountered in the construction or operation of the dry cask storage facility;
  - d. All Company contacts with the Nuclear Regulatory Commission in regard to the dry cask storage facility;
  - e. The results of the Company's radiation monitoring program, which shall be sent to the Indian Community;
  - f. The status of the Company's low level waste storage program;
  - g. Projected dates of any future filings requesting additional nuclear waste storage capacity;
  - h. Description of any present or future Company initiatives to expedite Department of Energy compliance with its responsibilities to remove and dispose of spent nuclear fuel.

8. The Company shall conduct its dry cask storage operations in strict compliance with legal requirements of all other units of government, including compliance with any version of the Prairie Island Mdewakanton Sioux Nuclear Radiation Control Ordinance ultimately upheld by the courts.
9. Within 15 days of receipt, the Company shall file with the Commission and serve on all parties copies of all Nuclear Regulatory Commission decisions relating to its applications to build the dry cask storage facility, to upgrade the license for the crane to handle the casks, and to approve its amended emergency preparedness plan.
10. As part of its next biennial resource planning process, the Company shall conduct detailed analyses of the feasibility and cost of different strategies for replacing Prairie Island generation, should the need arise.
11. The motion to strike the application, filed by the Prairie Island Coalition Against Nuclear Storage, is denied.
12. This Order shall become effective immediately.

BY ORDER OF THE COMMISSION

Richard R. Lancaster  
Executive Secretary

(S E A L)